

**COLLIMATOR SIGHT**

**ЭКП 1С**

Certificate

**ЖИРК.201334.002-01 ПС**

**NOTE!**

1. The following feature "The sight is proof against atmospheric precipitation(rain), condensed precipitation(dew, hoar-frost) and 95% humidity at +35° C (95° F)" is to be inserted into Section 3 "SPECIFICATIONS".
2. The "f)" in Section 4 "COMPONENTS AND EQUIPMENT PROVIDED" is to be in following words:  
**"LVB-316 battery (3V lithium) or Blik-3 battery (3V lithium)... 2pcs"**

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# 1 INTRODUCTION

This document provides users with information about our sighting device design and operating features.

## 2 PURPOSE

2.1 Our open-type collimator sight with electronic controls for brightness and changeable sighting marks (objectives) is designed to enhance sighting accuracy of small arms while shooting at various targets including fast moving targets. The collimator sight allows firing under natural illumination conditions from twilight to daylight.

2.2 The sight may be presently fitted onto the "Tigr", "Vepr", "Saiga-20", "Saiga-20K", Saiga-410", "Saiga-410K" and "Saiga-308" type carbines and other firearms with a compatible dovetail on the left side of the receiver.

2.3 Designation: ЭКП-1С.

## 3 SPECIFICATIONS

Reflector light transmission ratio (integral), no less than: .....	60%
Magnification: .....	1x
Number of sighting mark types: .....	3
Angular size of the «dot» type sighting mark: .....	1.8'
Brightness levels: .....	16
Conditional angular field of vision with the shooter's eye at 200 mm from the optical block plane, no less than: .....	6°
Time of continuous operation of sight with the «dot» mark under medium brightness conditions: .....	70 h
Operating temperature: .....	minus 40°C to +50°C ..... (minus 40°F to 122°F)
Battery power supply : .....	3 to 6 V
Dimensions: .....	61x138x140 mm
Weight (excluding case): .....	410 g

## 4 COMPONENTS AND EQUIPMENT PROVIDED

The product includes:

a) Collimator sight .....	1 pc
b) Case ( portable bag) .....	1 pc
c) Packing box .....	1 pc
d) Wrench-screwdriver .....	1 pc
e) Lens hood .....	1 pc
f) "Blik-3" (3 V lithium) .....	2 pcs
g) Cleaning cloth .....	1 pc
h) Certificate .....	1 pc

## 5 DESIGN AND OPERATING PRINCIPLES

5.1 The sight consists of the following parts (Fig.1):

- body 1;
- reflector 2;
- bracket 3 with clamp 4.

The battery compartment cover (5) is located on the front of the body and the elevation dial (7) (above, see Fig. 2) and windage dial (6) are located on the rear.

The on-switch (8), the button for mark (objective) selection (9) and the sighting mark brightness button (10) are on the side and bottom of the sight.

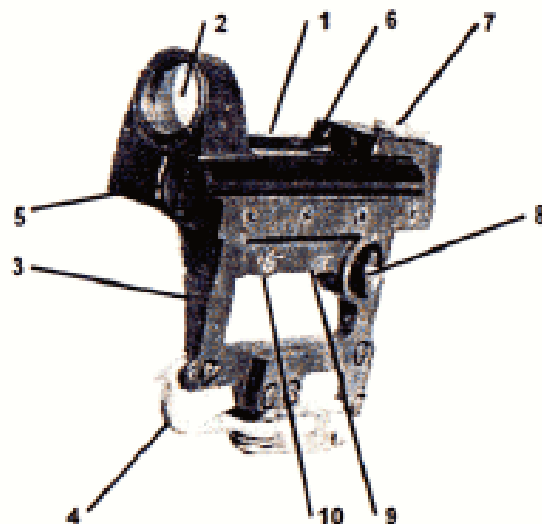


Fig.1. Sight ЭКП - 1С

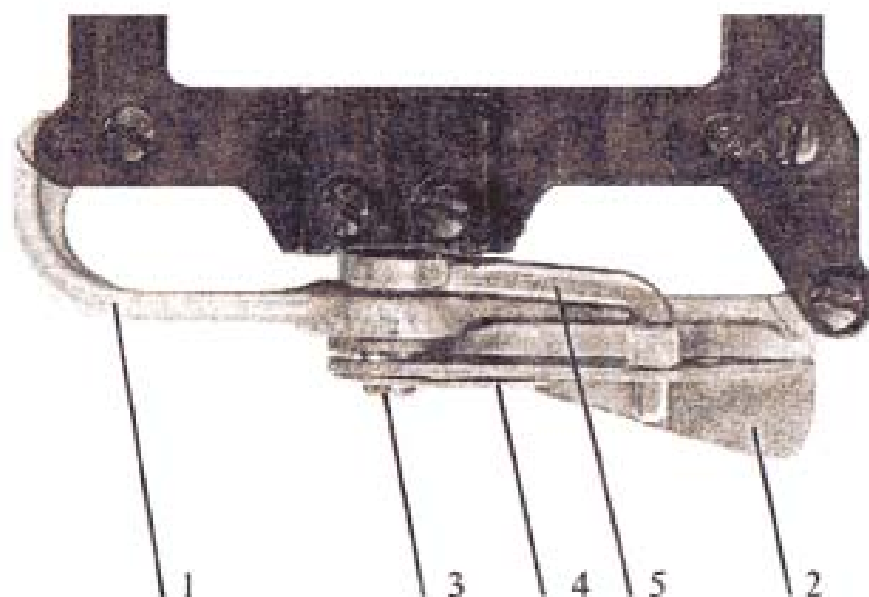
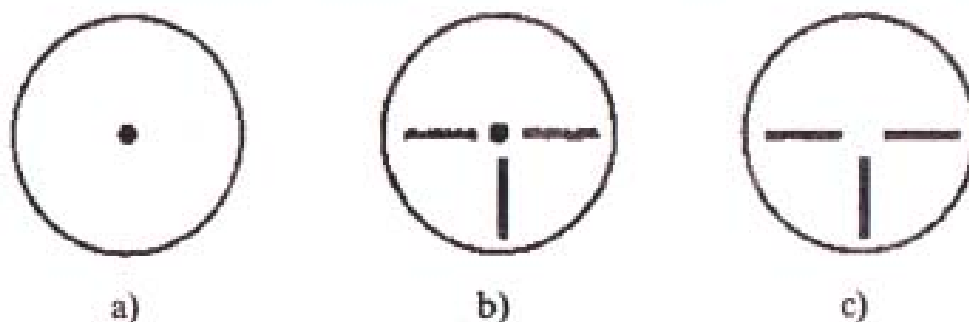


Fig.2. Sight-to-gun fitting arrangement

5.2 The sight-to-gun fitting arrangement (see Fig.2) includes a resilient frame (1), a handle (2) with a fixing lug, a screw (3), a locking plate (4) and a lever (5) with cam.

5.3 The signal generated by the electronic control circuit located in the body (1) ( Fig.1) is fed to a LED radiator forming one of the sighting marks (Fig.4). A shooter sees the sighting mark in the reflector optical block (2).



a) «dot» type mark;    b) «T»- mark with point;    c) «T»- mark.

Fig.3. Sighting Mark Types

The sight operating principle is based on matching the luminous sighting mark with the target seen through the optical block.

5.4 To get optimum contrast of the target and the sighting mark the device includes a button (10) for mark brightness adjustment (Fig.1).

5.5 The specific feature of the collimator sight is a possibility of shooting and observing the target with both eyes simultaneously, which enables an increased field of vision and more hit on transitory targets due to more rapid target acquisition.

5.6 The collimator sight will switch on to the previously selected mark type and brightness level, due to a memory feature (off-switch 8 at Fig.1). This allows one to preset an optimum type and light brightness value of sighting mark.

5.7 The shooting distance is set and the side corrections are input by dials (6) and (7) (Fig.1) of the elevation and windage device located in the body (1). The dials are protected against damaging factors by folding caps (see Fig. 4).

## **6 GENERAL INFORMATION**

6.1 Prior to operation the sight should be examined carefully and tested for proper operation: power on/off, free turning of the adjustment dials, the sighting mark types and their brightness switches.

6.2 The sight is dust- and moisture-proof. All the threaded junctions are locked against loosening. Disassembling of the sight is not recommended because the sight assembly depends on pre-torqued screws to guard against loosening. All disassembling operations must be implemented by specially trained staff in our workshops.

## **7 PREPARING FOR OPERATION**

### **7.1 Batteries.**

7.1.1 To install or replace batteries, it is necessary to turn the cover of the battery compartment (Fig.1) in the «O» (open) direction until it stops and pull it out from its socket with the wrench-screwdriver. The wrench-screwdriver is in one of the case pockets. Then remove the old batteries and install new ones according to polarity given on the bottom of the sight body. Place the cover (5) into its socket and turn in the «3» (closed) direction until it stops.

7.2 Turn power on/off by turning the handle (8) to the «B» (on) or the «O» (off) positions. If the sighting mark is not seen upon switching on, we recommend that you press the button (10) in the «+» direction several times.

7.3 The mark (objective) type is selected by consecutively pressing button (9).

7.4 The optimum brightness of the mark is set with button (10). The button (10) is a double-armed lever. A single push on one of the arms in the «+» or the «-» direction results in brightness increase or decrease by a factor of two (each level is twice as bright as the previous one). The total number of brightness levels is 16. If you have passed all the 16 brightness levels consecutively (from minimum to maximum or vice versa), the further pressing in the same direction does not result in any brightness change.

7.5 Sight installation.

7.5.1 Push the sight onto the sight mounting bar from the butt-stock side until it stops. The tightening handle should be in the position shown in Fig.3. After that the handle is turned 180° and is locked with its fixing lug.

7.5.2 The sight should be fixed tightly on the gun's side bar but it should be mounted and removed easily. Optimum fixing is provided by adjusting the mounting mechanism.

To mount the sight tightly it is necessary:

- a) To remove the locking plate (Fig.2);
- b) To mount the sight normally without its removal (move the handle (2) in spline shaft of the screw (3)). (See Note # 2 below).
- c) Put the locking plate in its place.

### **Notes:**

**1** The above procedure must be carried out with care because consistent shooting results after subsequent sight removals and installations depends on it to a great extent.

**2** The screw (3) is left-hand threaded.



## 8 ADJUSTING AND OPERATING THE SIGHT

8.1 After first-hand acquaintance with the sight design and operating principle it is necessary to sight-in your gun. To sight-in carbine types "Tigr", "Vepr" and "Saiga" with rifled barrels the following order is recommended:

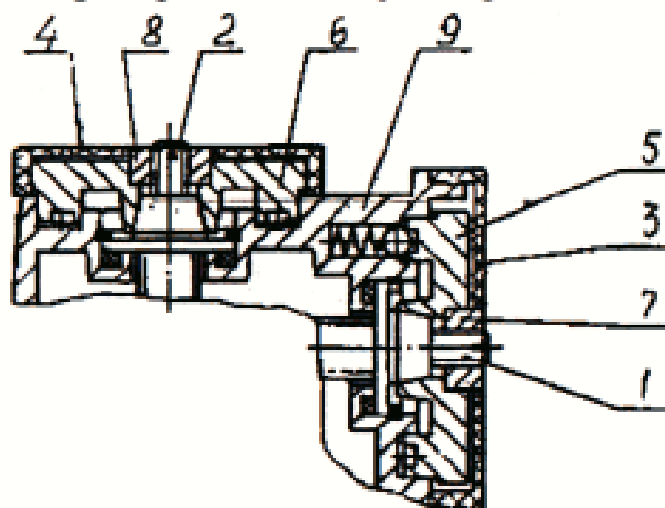
8.2 Sighting-in is accomplished at a distance of 100 meters.

8.3 The shooter should be in a reclining or sitting position with rest while shooting. Firing is with a sighting-in target or a black square with sides of 25 cm which are placed on a white board (1.0 m x 1.0 m). The bull's eye should be the centre of a circle with a radius of 12.5 cm or a square centre marked with chalk. The sighting-in process consists of superposition of the luminous «dot» with the centre of impact.

8.4 To sight-in the gun a series of 4 shot groups with gradual horizontal and vertical adjustment is required.

8.5 The sight is considered to be sighted-in if the middle of your groups is inside the 10 cm circle in a centre of the target "dot" as a centre, with a normal close grouping of shots. The grouping of shots is considered to be normal when the target has 4 or (or at least 3) bullet-holes in a circle of 15 cm.

8.6 The sighting-in results are achieved with the horizontal and vertical adjustment device (see Fig.4). The LED radiator is moved in horizontal and vertical directions with the lead screws (1) and (2) for adjustment. The slope angle of your sighting line is thereby changed.



1 and 2 - lead screws; 3- cap; 5 and 6 - handles;  
7 and 8 - nuts; 9- sight body

Fig. 4 Adjustment Device

- 8.7 To make horizontal (windage) corrections it is necessary to:
- a) To make horizontal (windage) corrections it is necessary to:
  - b) remove the cap (3) ;
  - c) unscrew the round nut (7) by approximately one turn with the wrench-screwdriver while holding the handle (5);
  - d) detach the handle (5) from the lead screw (1) tapered surface along its longitudinal axis;
  - e) put on the cap (3);
  - f) turn the lead screw (1) with the wrench-screwdriver in the direction shown on the handle top butt according to the scale on the protective cap (3);
  - g) remove the cap (3) upon obtaining the necessary results;
  - h) align the handle (5) at the «0» position with the sight body fixed mark;
  - i) tighten the nut (7) while pressing the handle (5) to the lead screw (1) without turning through the screws;
  - j) the vertical adjustment is the same.

**Notes:**

1 The handles (5) and (6) indices stand for hitting point displacement:

- «П» - to the right;
- «Л» - to the left;
- "B" - upwards;
- "H" - downwards

2 The scale division of the caps (3) and (4) and of the handles (5) and (6) (see Fig.4) is 3.1 cm at the 100 m range.

3 Turning of the handles (5) and (6) is limited to one turn with the handle screws. Subsequent handle turning is possible only upon unscrewing these screws by 1.5...2.0 turns.

4 We recommend you record the information about scale position for vertical and horizontal corrections in the "Remarks" Section of your Certificate. It is recommended that you designate a scale's position with a digit or a letter, "4Л", "6H", "3B", "5П", "0", for example.

5 To sight-in your gun you may move the handles (5) and (6) (without untightening the nuts (7) and (8)) from one fixed position to another one until the desired results are obtained. It is necessary to loosen the handle set screws by 1.5 - 2 turns before sighting-in. Tighten the set screw upon obtaining the necessary sighting-in results. If the handle set screw is turned to be opposite the sight body mark it is necessary to reset the handle to "0" position, for example, and repeat all the steps of Section 8.7.

8.8 To change the shooting range (for example, 300 m) it is recommended :

a) to define the average point of impact while firing at a target (see Section 8.3) with a regular mechanical sight at a distance of 100 m. The sight bar is to be set to the corresponding range position;

b) to define the average point of impact while firing with the same sight at the same target and the same point of target for a range of 100 m. The sight is to be at the 300 meters position;

c) to measure the distance between the vertical average points of impact defined (h - height difference).

The number of the handle (6) clicks required for a changing range while firing is defined as follows :

$$Z = h/s ,$$

where  $s = 3.1$  cm is the value of one click at a shooting range of 100 m,  
h - height difference , cm.

The culcated Z value is approximated to the next whole number. The shooting range is set with handle (6) (Fig.4) without the nut (8) being untightened. To increase shooting range it is necessary to turn the handle (6) in the "B" (up) direction and vice versa - in the "H" (down) direction.

8.9 Sighting - in methods of smoothbore firearms are done by the use accordance with the inrormation given in this Section.

8.10 The sight operating precedures are the following:

a) take the sight out of the case. Mount it on your gun and fix it with the handle (2) (Fig.3);

b) set the switch (8) to the «B» position for power on (Fig.1);

c) select the mark (objective) type with the button (9);

d) adjust the optimum mark brightness with the button (10);

e) while firing the sighting mark (objective's) position on a target corresponds to the point of impact at any given range.

8.11 To apply a correction while operating, it is necessary to turn the handle (6) (Fig.1) from one fixed position to another for horizontal (windage) corrections. For vertical (elevation) corrections it is necessary to repeat all the sighting-in steps.

8.12 It is not recommended to remove the handles (5) and (6) (Fig.4) because of a possibility of losing the lock spring and the lock.

8.13 The lens hood is located in the upper part of the packing case. It is necessary to install the lens hood from the front side of the sight on the projected screws of the reflector case (2) (Fig.1). The screw heads should be placed into the holes on the lens hood end face. Then fit a rectangular recess of the upper lug to the corresponding reflector case projection.

8.14 It is necessary to set the switch (8) (Fig.1) to the «0» position at the end of operation.

8.15 It is recommended that you remove the lens hood before the sight is packed into its case.

## 9 MAINTENANCE

9.1 It is recommended to carry out a periodical technical inspection accordance with Item 6 of the present document. The technical inspection period depends on the sight's usage.

9.2 After operation is complete it is necessary to examine the sight and wipe it with a clean cloth. Lenses should be cleaned from centre to edge with circular motions. If the sight has been immersed into water it is necessary to wipe and dry it.

9.3 It is necessary to control constantly the tightness of the nuts (7;8) (Fig.4) because they may loosen during shooting.

9.4 For the sight's proper operation it is necessary to:

- a) protect the sight from falls and shocks;
- b) store it in a dry place at a temperature of +5°C to +35°C (41°F to 95°F) and relative humidity not more than 85%.

## 10 TROUBLESHOOTING

Item	Fault	Possible Cause	Remedy
1	The mark does not go on when the sight is on	-Batteries are discharged -Polarity is wrong	-Replace batteries -Observe polarity
2	The mark is luminous but brightness is not changed when the button is pressed	Supply voltage is low	Replace batteries. Lithium Varta GRAA (3V) may be used

## 11 ACCEPTANCE CERTIFICATE

Collimator sight ЭКП-1С ЖИРК.201334.002,  
Serial № \_\_\_\_\_  
complies with specifications ЖИРК.201334.002 ТУ and is fit for operation.

Date of production \_\_\_\_\_

Representation of  
Manufacturer's Quality  
Control department \_\_\_\_\_

Persons responsible for Acceptance  
(signatures)



Packed by \_\_\_\_\_  
Persons responsible for Acceptance  
(signatures)

## 12 REMARKS

### NOTE!

When using Li batteries **do not**:

- short-circuit the batteries;
- heat the batteries to the temperatures more than 100° C (212° F);
- open or damage the batteries;
- take any actions which may result in change of a battery's shape or its leak-proofness disturbance.

Li batteries should be utilized according to the laws being in force in this country.